

## Pipe Fabrication & Installation (PFPB 2307)



**Credit:** 3 semester credit hours (2 hours lecture, 2 hours lab)

**Prerequisite/Co-requisite:** N/A

### Course Description:

Pipe fabrication procedures of threaded, socketweld, and buttweld pipe joints. Includes pipe and tube bending with hand benders, saddling in and saddling on pipe braces to pipe headers, and fabrication and installation of pipe supports.

### Required Textbook and Materials

1. *Audel Millwrights & Mechanics Guide* by Davis & Nelson 5<sup>th</sup> edition; ISBN: 0-7645-4171-1.
1. Equipment to be furnished by students: Required at instructor discretion.
  - a. Safety Glasses (Z 87+)
  - b. Gloves (leather or equal)
  - c. Long pants and long sleeve shirt
  - d. Shoes or Boots (substantial leather or equal w/ heels - no open toes)

### Course Objectives

Upon completion of this course, the student will be able to:

1. Fabricate various types of pipe components.
2. Install various types of pipe components.
3. Fit and align various types of pipe connections.

### Course Outline

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| A. Introduction and safety                       | 2. Demonstrate machine threading             |
| 1. Introduce Faculty                             |  |
| 2. Discuss Safety in Lab                         | E. Plastic Pipe preparation and assembly     |
| B. Pipe identification and schedule              | 1. Discuss plastic pipe prep and assembly    |
| 1. Define and explain Schedule of Pipe           | 2. Demonstrate prep and assembly             |
| 2. Show examples of Pipe                         | F. Tubing assembly (compression and solder)  |
| C. Pipe fittings identification and dimensioning | 1. Demonstrate compression fitting of tubing |
| 1. Show examples of fittings                     | 2. Demonstrate solder joints of tubing       |
| 2. Show how to id and measure fittings           | G. Steel Pipe cutting and threading          |
| D. Pipe fabrication techniques                   |  |
| 1. Demonstrate hand threading                    |  |

PFPB 2307  
Course Syllabus

1. Students hand cut and thread pipe
2. Students machine cut and thread pipe
- H. Steel Pipe assembly
  1. Students assemble pipe
  2. Students disassemble pipe
- I. Pipe tack welding
  1. Students set up pipe for tack welding
  2. Students tack pipe in place
- J. Pipe alignment, instruments, and tools
  1. Demonstrate tools
  2. Demonstrate how to use tools
- K. Pipe lifting, rigging, support, and safety
  - A. Demonstrate rigging to lift pipe
  - B. Have Students rig and lift pipe
- L. Pipe fitting and alignment techniques
  1. Demonstrate fitting and alignment
  2. Have students fit and align pipe
- M. Pipe and fitting inspection and testing
  1. Inspect student's work
  2. Hydro test work

### Grade Scale

90 – 100	A
80 – 89	B
70 – 79	C
60 – 69	D
0 – 59	F

### Course Evaluation

Final grades will be calculated according to the following criteria:

Activity	Percentage
Major test	75%
Class participation	25%

### Course Requirements

1. Introduction to Pipe Fabrication
2. Install various types of pipe components
3. Fit and align various types of pipe connections
4. Apply procedures for bending pipe and tubing to specific dimensions

### Disabilities Statement

The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit the online resource:

<http://www.lit.edu/depts/stuserv/special/defaults.aspx>

### **Student Code of Conduct Statement**

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the *LIT Catalog and Student Handbook*. The *LIT Catalog and Student Handbook* may be accessed at [www.lit.edu](http://www.lit.edu) or obtained in print upon request at the Student Services Office.

### **Starfish**

LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff all through the Starfish home page. You can also login to Blackboard or MyLIT and click on the Starfish link to view academic alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.



### **Course Schedule**

<b>Week</b>	<b>Topic</b>	<b>Reference</b>
1	Course introduction and policies <ul style="list-style-type: none"><li>• Lecture</li><li>• Lab: Practice Drawing</li></ul>	Handouts
2	Introduction to Pipe Fabrication <ul style="list-style-type: none"><li>• Lecture: Safety</li><li>• Lab: Practice</li></ul>	Chapter 1
3	Pipe Threads <ul style="list-style-type: none"><li>• Lecture</li><li>• Lab: Practice</li></ul>	Chapter 27

PFPB 2307  
Course Syllabus

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4	Pipe Measurement <ul style="list-style-type: none"><li>• Lecture</li><li>• Lab: Practice</li></ul>	Chapter 27
5	Piping Offsets <ul style="list-style-type: none"><li>• Lecture</li><li>• Lab: Practice</li></ul>	Chapter 27
6	Layout Procedure <ul style="list-style-type: none"><li>• Lecture</li><li>• Lab: Practice</li></ul>	Chapter 27
7	Pipe Valves <ul style="list-style-type: none"><li>• Lecture</li><li>• Lab: Practice</li></ul>	Chapter 28
8	Pipe Valves <ul style="list-style-type: none"><li>• Lecture</li><li>• Lab: Practice</li></ul>	Chapter 28
9-16	Pipe Valves - Installation <ul style="list-style-type: none"><li>• Lecture</li><li>• Lab: Practice</li></ul>	Chapter 28

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